UML Diagrams

For

Waste Management Software

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README/ Description:

1. Class Diagrams:

1. The software consists of mainly the user interface and the worker interface.
2. Each user or worker is identified by his/her name and a unique id, both of which are public members of user or worker class. Apart from that, they have their contact details and the private login Id and password used for login and authentication.
3. Three databases are maintained each for user, worker and complaints to store the respective data. Each has a maximum size limit. The current size of the database is a member of the database super-class of which all three databases inherit.
4. The complaint class consists of objects describing individual complaints and is associated separately with the user class and worker class. Further, it is a part of the worker schedule as well. Hence it is depicted with the aggregation.
5. All the three databases are entirely composed of the respective objects i.e user database consists of users, etc. Hence all three databases are connected to their respective classes via the composition marker.

2. Use-Case Diagrams:

1. The actors identified here are the user and the worker.
2. Both the actors need to login for using the system. Hence, login is associated with other use cases with an << include >> relationship. The identified use cases for user are filing a new complaint, viewing old complaints and updating personal details. The former has an extension of contacting the concerned worker as well.
3. The use cases for the worker are viewing his/her schedule and updating personal information.
4. Apart from this, both the user and the worker have a one-time registration that needs to be performed in order to use the system. This forms a separate use case for each of them. As providing details follows the registration and registration is incomplete without this,it is associated with an << include >> relation.
5. Although the databases can be considered as external entities, they are not included as actors as they do not have any specific use case that they initiate.

3. State chart diagrams:

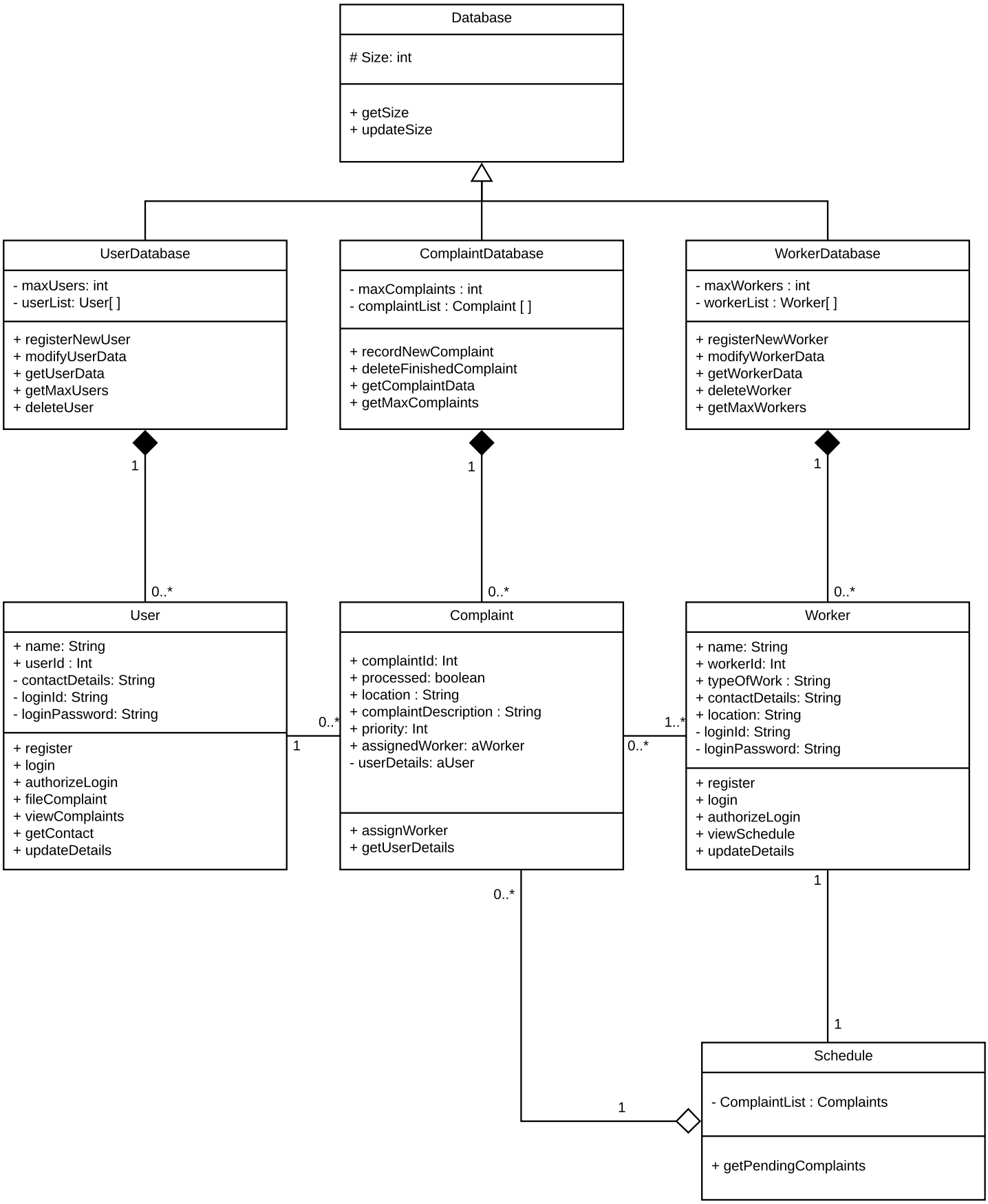
1. The state chart diagrams list the states of the user and worker objects while using the software. Since both have mutually exclusive states, they are depicted using separate state chart diagrams.
2. As login is required for both the user and worker to use the software it is made as the first state. After this, they enter into the respective interface super states.

3. In the interface, both the user object and worker object have states corresponding to their use cases. Depending on the choice of action by the user or worker, the state of the object changes.
4. As logout can occur at any time while using the software, it is depicted as a separate state outside the super state which can be reached from any state in the superstate.

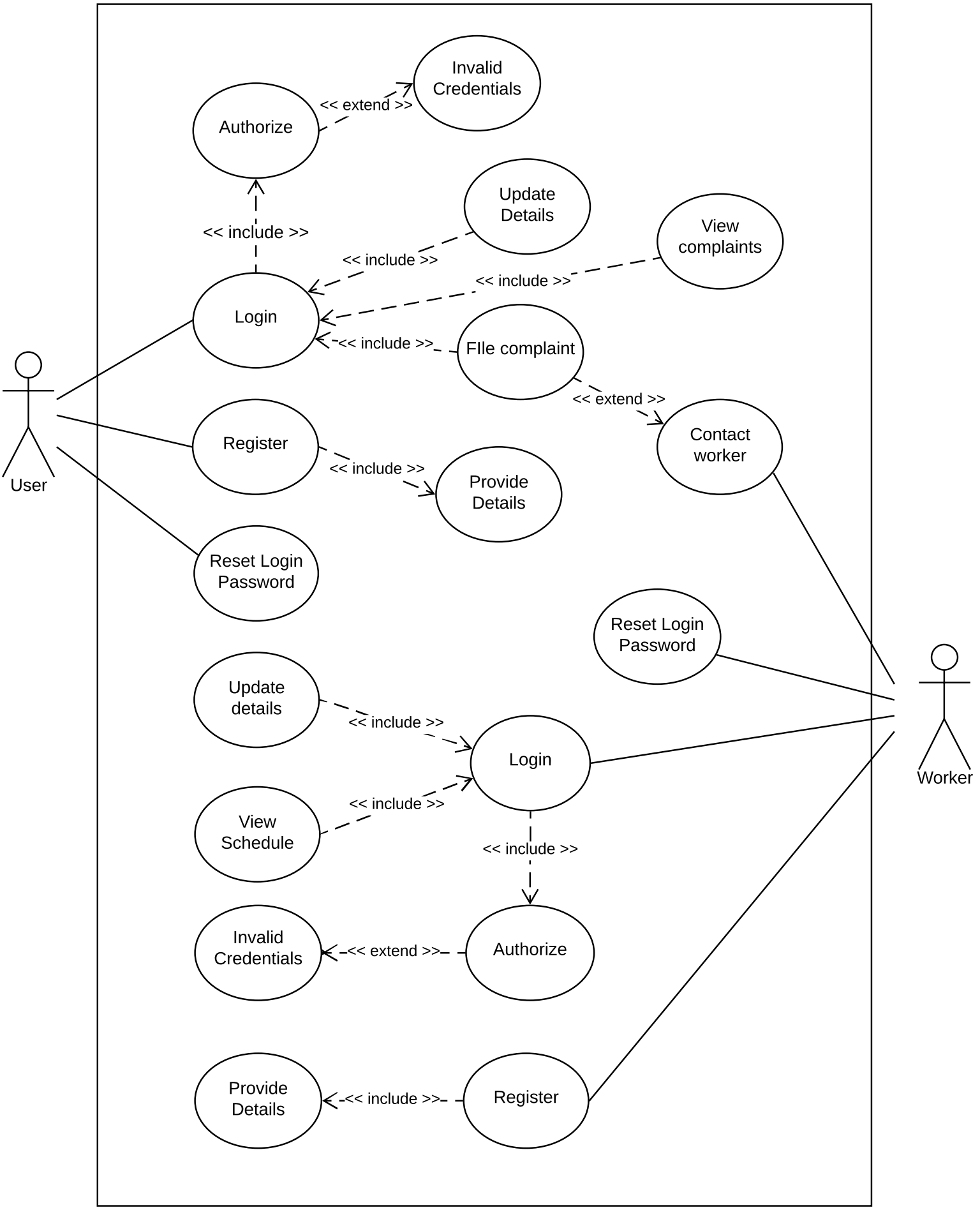
4. Sequence Diagram:

1. Here also, the main actors consist the user and worker. Since the sequence of working of each interface is mutually unrelated, both are depicted in separate diagrams.
2. The sequence diagram of user is initiated by the user actor. The first step is the login step.
3. After login, the user has the option to input his desired action of filing new complaint, viewing the existing complaints, and to modify his personal details.
4. Each action is followed by the list of actions and message calls as depicted in the diagram.
5. For the worker as well, the initial call is made by the worker which is logging into the system. After successful login, he/she has the option to enter his desired action of viewing his/her schedule or to update the personal details.
6. In the second diagram, after the complaint if filed, it needs to be stored and processed as well. As storing shouldn't require the system to stop processing, it is depicted as a asynchronous message. Similarly while notifying the user and worker after processing, it becomes a asynchronous message as the system shouldn't be blocked while sending out the notification.
7. The activation of the user and worker are only as long as the user or worker is logged into the system. Once he/she is logged out, his/her activation is destroyed.

CLASS DIAGRAM FOR WMS

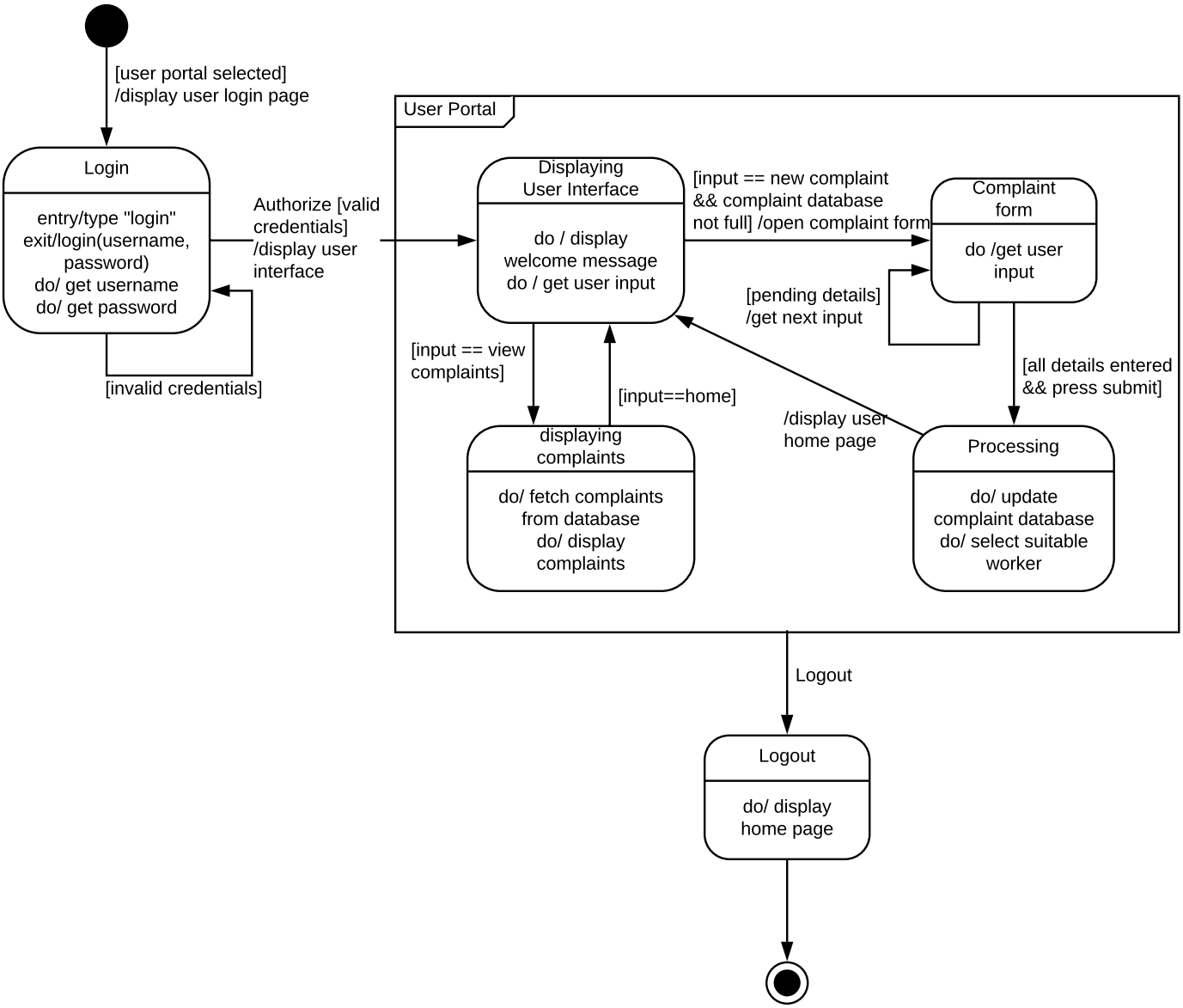


Use Case diagram for WMS

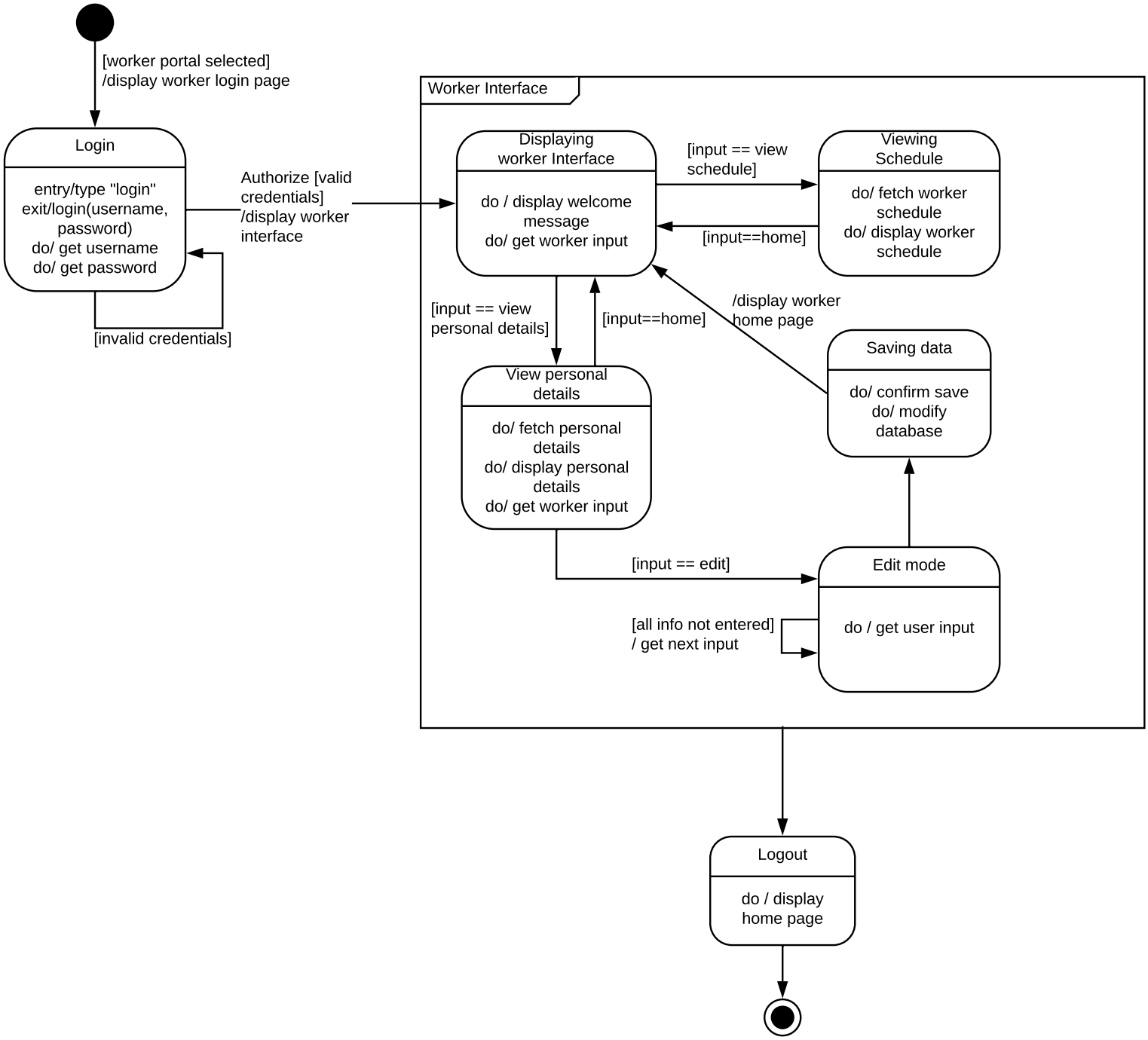


State Chart Diagrams

State Chart Diagram for User object

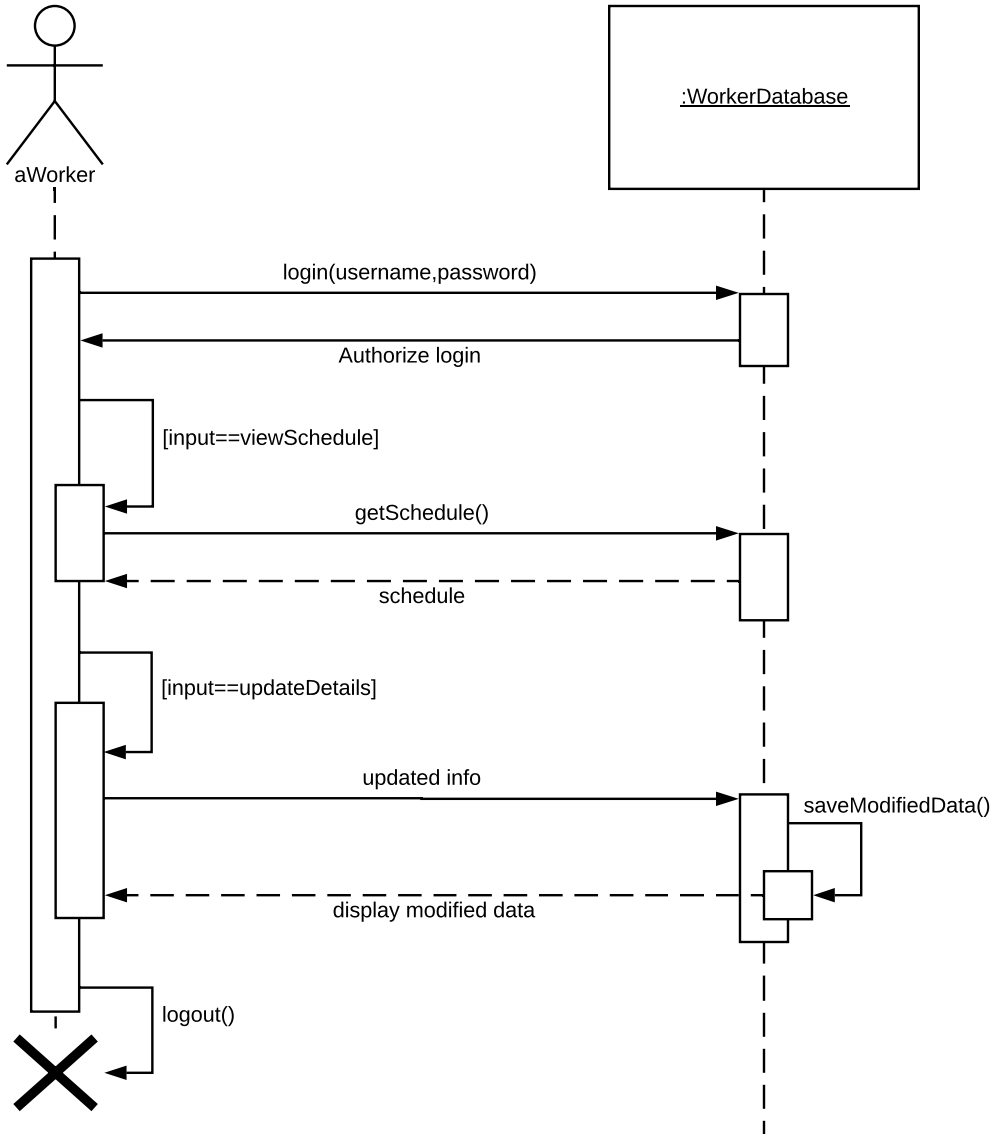
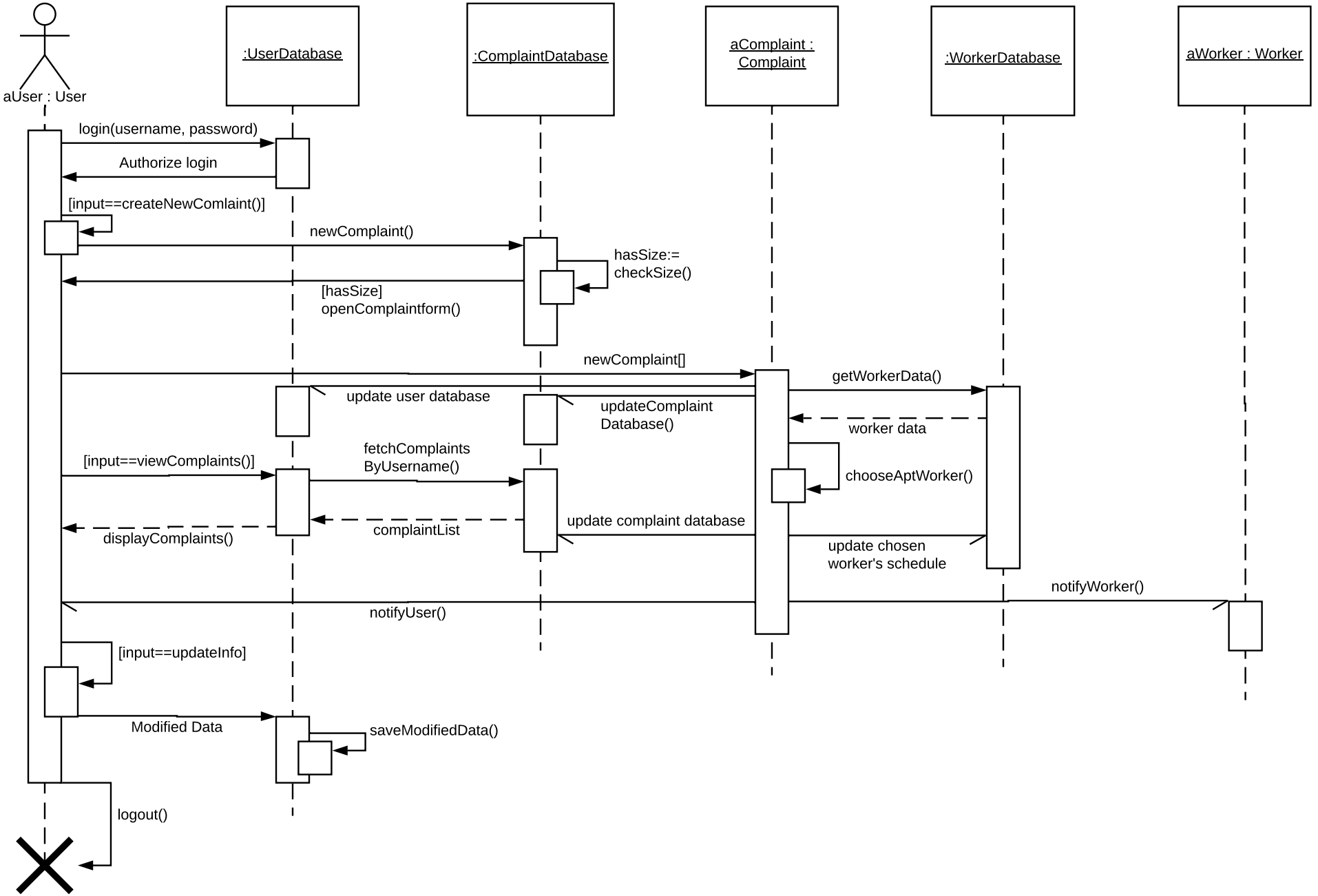


State Chart Diagram for Worker object



Sequence Diagrams

Sequence Diagram for Worker



Sequence Diagram for User Interface